Mach3 USB Motion Card (STB4100) Installation Manual

V2.1

The motion control card for machine control, with strong professional.Requires the operator to have the relevant expertise!If used improperly, may appear an accident, please strictly follow the instructions and warnings using this product if you are not sure, consulting engineers for help.First time users, if you are not familiar with the product and software features Mach3 In your test product, make sure the machine's power switch on hand, you can quickly turn off the power. Recommends that users install the emergency stop button and make sure the button is functioning properly. Please strictly follow the instructions and warnings using this product.Any direct / indirect personal injury, our company does not assume any responsibility.
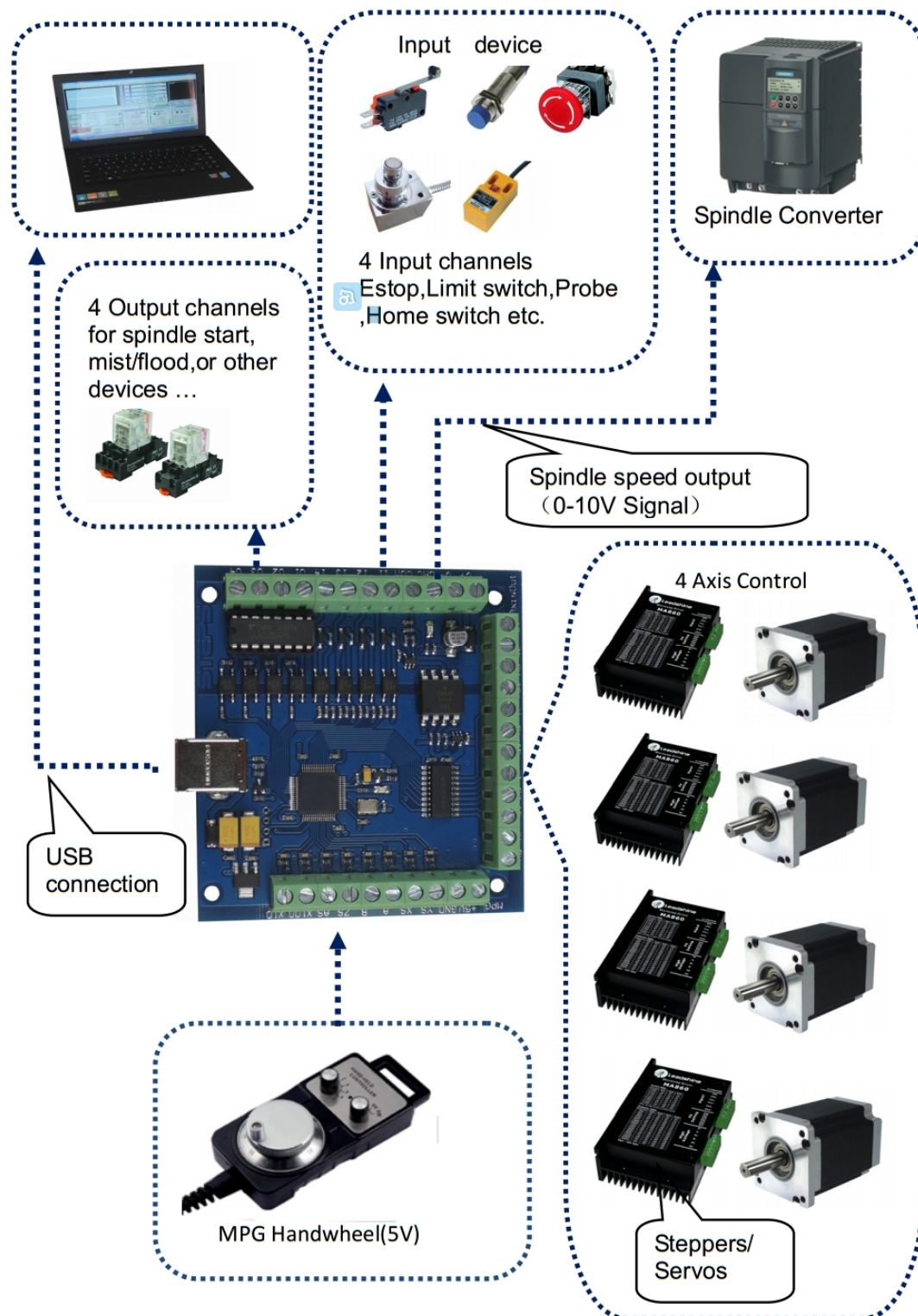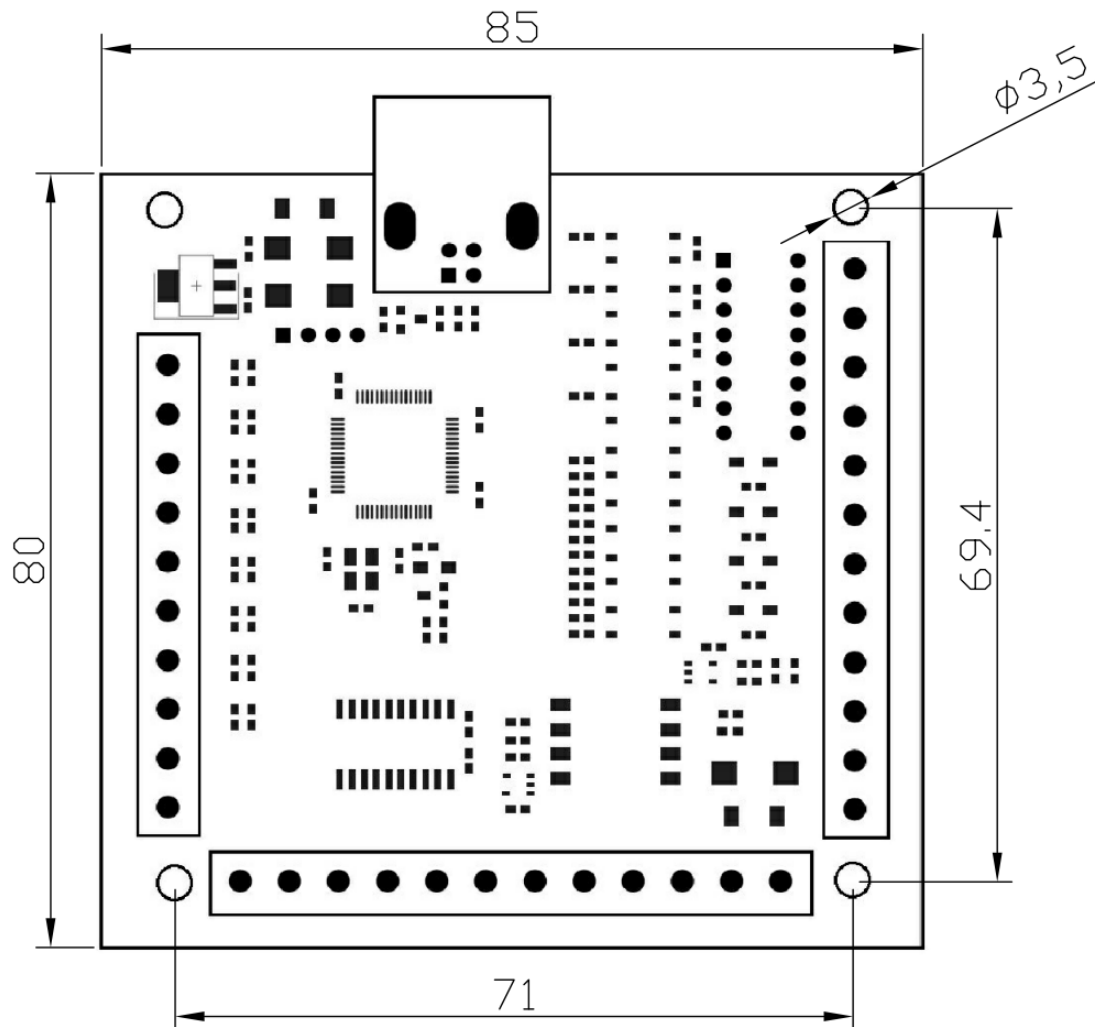
Contents

Features:

1. Support for 4-axis linkage, you can connect four stepper motor drives or servo drives;

2. Maximum step-pulse frequency is 100KHz,which is suitable for the servo or stepping motor;

3. 4 general-purpose opto-couplers isolation input : can connect the limit switch, emergency stop switch, auto tool zero, home switch etc.

4. Support for connecting electronic handwheel;

5. Have 0-10V signal output , you can use mach3 software to control the spindle motor speed.

6. 4 general-purpose isolated relay drive output interface, can drive four relays for controlling the spindle starts, forward rotating and reverse rotating, pumps or other device;

7. 1 status LED, indicate connection status on the board.

Basic connection diagram (an Overview):

Input   device

4 Input channels
Estop,Limit switch,Probe
,Home switch etc.

Spindle Converter

4 Output channels
for spindle start,
mist/flood,or other
devices …

Spindle speed output
（0-10V Signal）

4 Axis Control

USB
connection

MPG Handwheel(5V)

Steppers/
Servos

Mechanical dimensions diagram:

1.Prepare:

1.1.Installation the Mach3:

Open the CD, find mach3 software，run the installation file：

Follow the prompts to install, until the last step.

The last step requires Note: For 64-bit computer, it is best not to select"LoadMach3 Driver "this one, because it will cause the system to prompt installation errors.

1.2.Software license application:

Copy license files "Mach1Lic.dat" from "mach3 software folder",to C:\Mach3 Cover the original file,Reset Computer（must reset the computr,please don't open the software dircetly!）

Way above the license for DIY or study purposes only, not for commercial use.

1.3. Installation the software of the USB motion card:

This USB motion card does not need install any USB driver,Windows2000/XP/Windows7,can directly identify.

1.3.1 Connecting the USB cable to the PC and the motion card:

The first installation of motion control card, take about 10s, when the green led lights on motion control card, indicating that the connection is successful, return the following tips when you install on your computer:
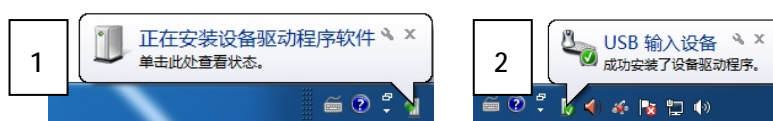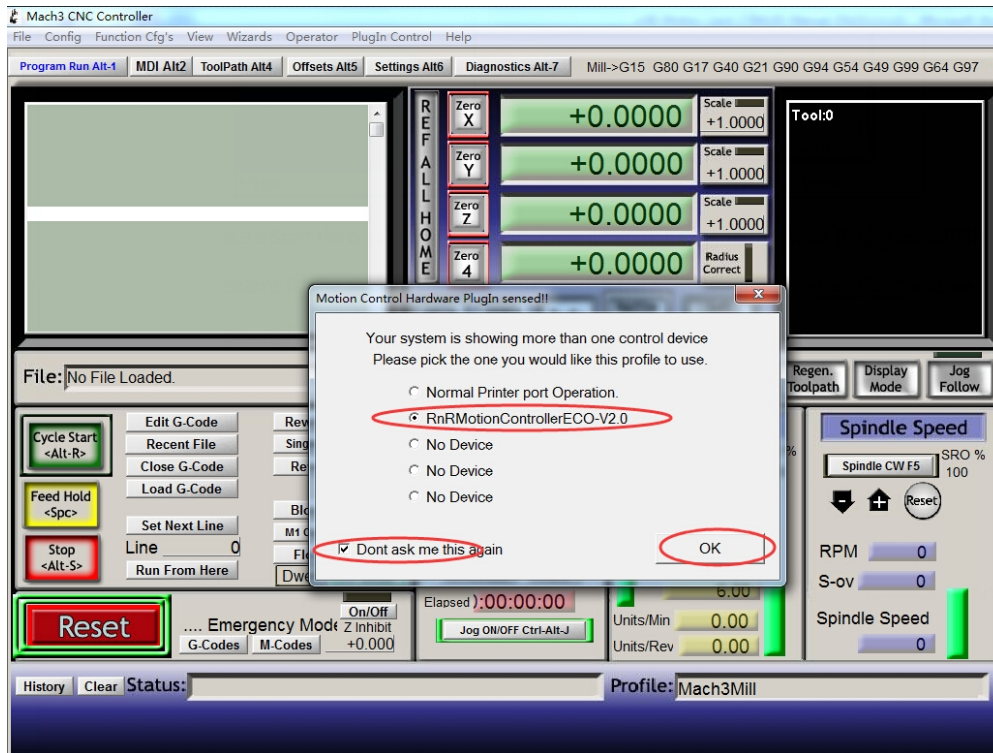
1.3.2 Installing the motion card plug-in.

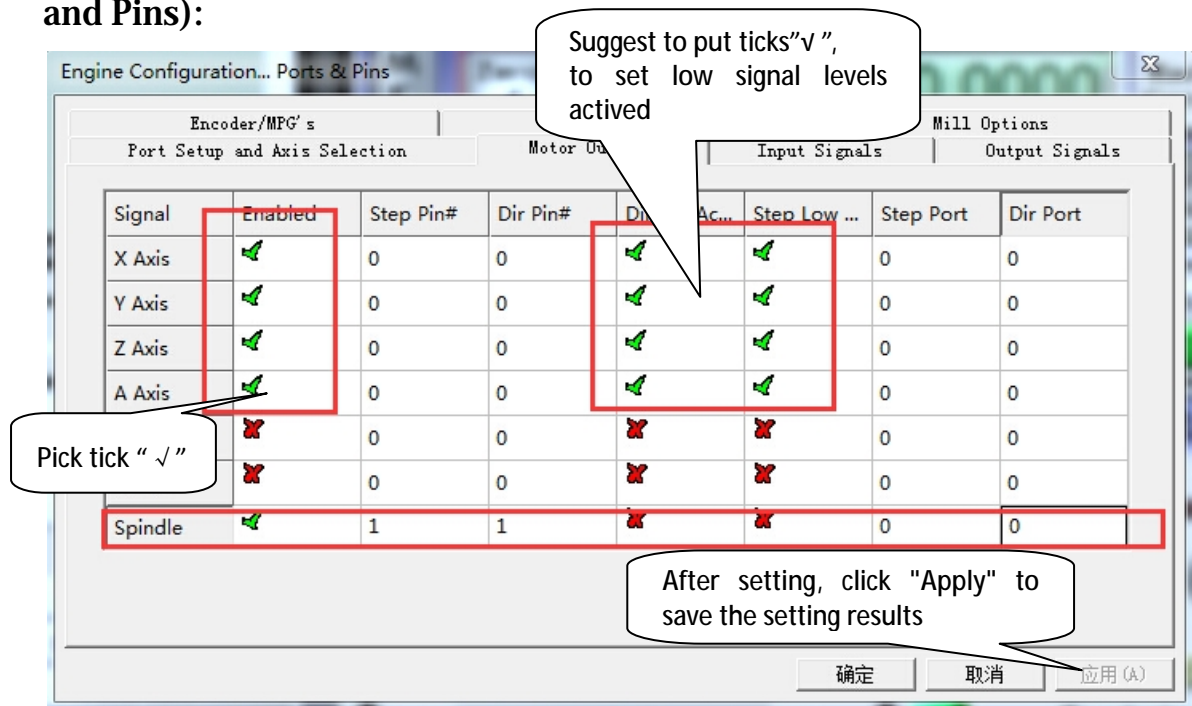Unzip the usb move.zip, copy or drag RnRMotion.dll into your Mach3\PlugIns folder.
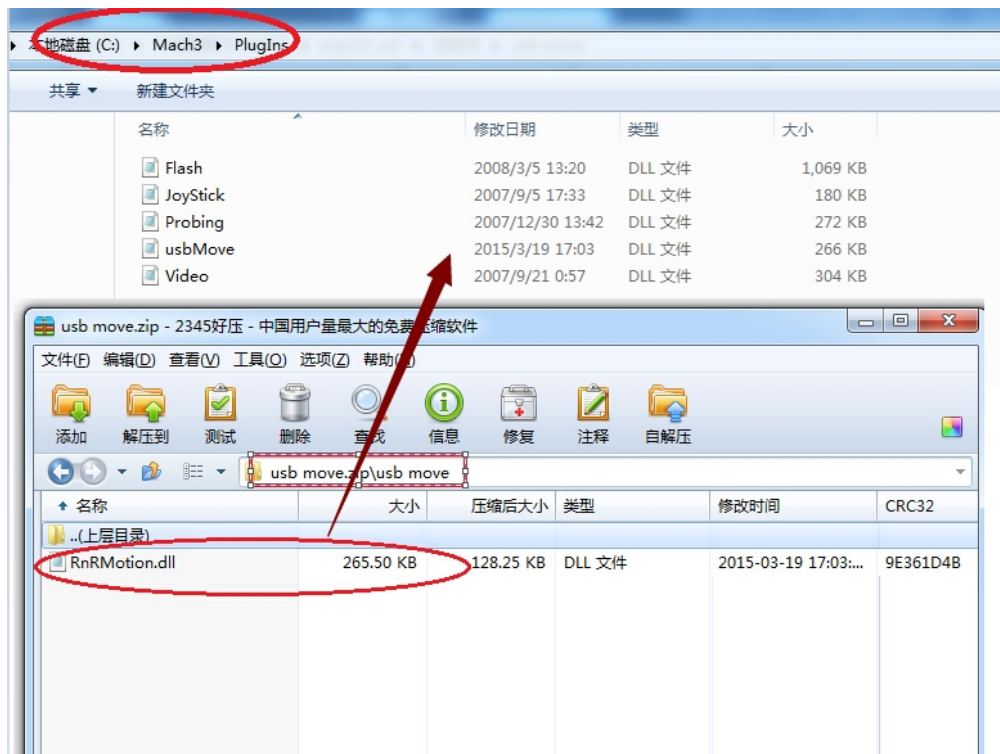
1.3.3 Start the Mach3 software, a dialogue of "Motion Control Hardware PlugIn sensed!" is shown. Please select the" RnRMotionControllerECO-V2.0", you can also check"Don't ask me this again".

2.config for mach3:

2.1 Mach3 X、 Y、 Z、 A Axis config as shown below: Config => Ports and Pins):

2.2 Motor tuning setup as shown below: (Config => Motor Tuning)

## 2.3 The Mach3 Menu => Config => Homing/Limits dialog：

Axis direction, depends on the "Reversed"

2.4 Setup the input signal：

There are 4 general-purpose input channels. The channels number is from I1 to I4.

Example of input signal settings: I1 is connected to emergency stop switch, I2 is connected to 4 axis

limit switches, I3 is connected to 4 axis home switches, I4 is connected to auto tool zero, set as shown

below:
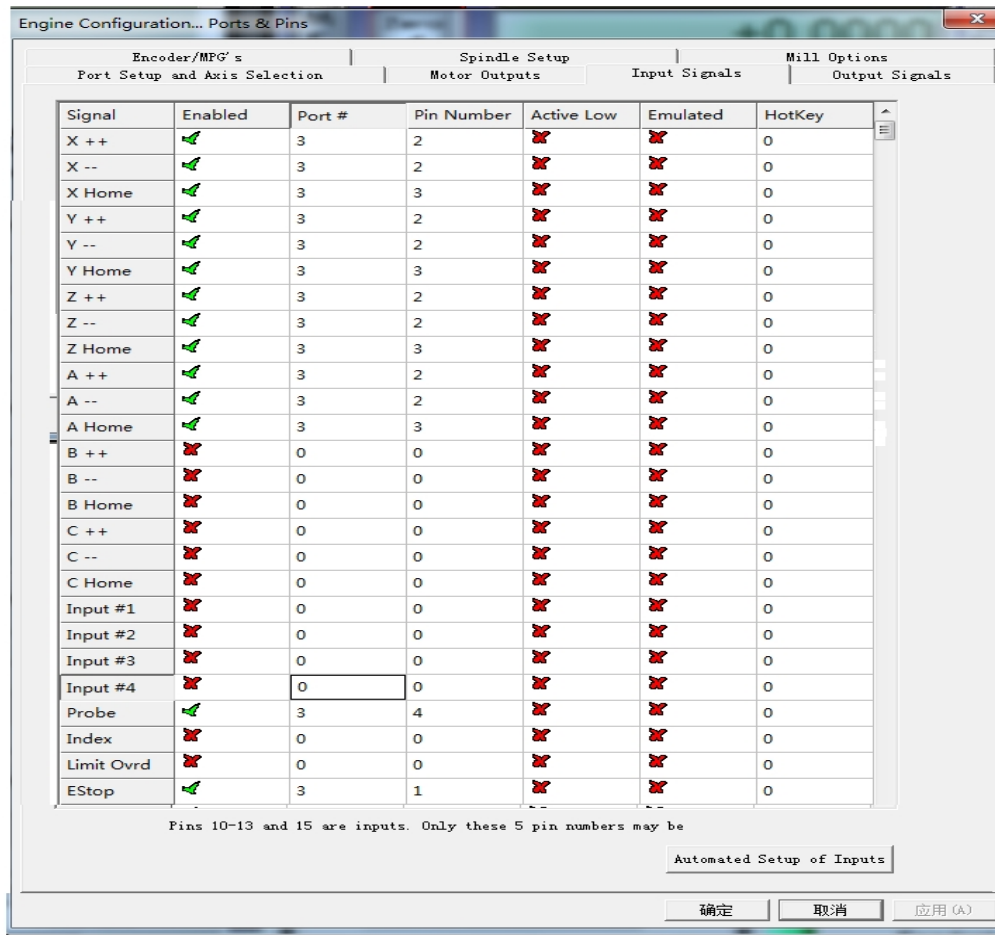
2.5 Setup the Output signals:

There are 4 general-purpose (open-drain) output channels, The channels number is from O1 to

O4, mach3 setup as shown below:
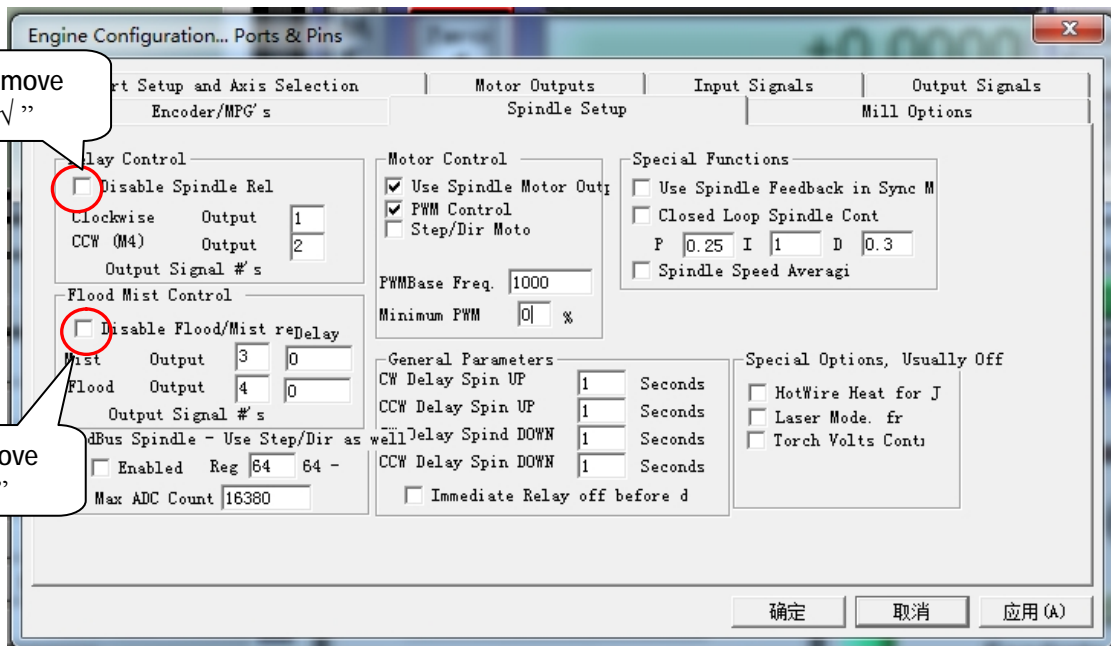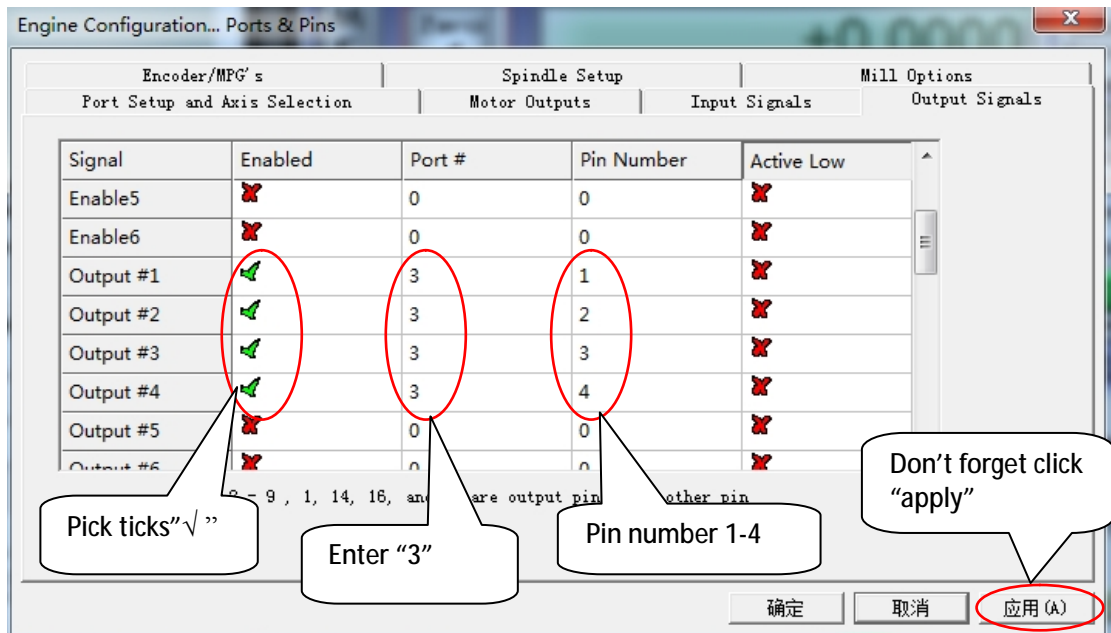
M3 code control output 1 output, M4 code control output port 2 output,M5 shut down output 1 and output2.

M7 code control output 3 output, M8 code control output port 4 output,M9 shut down output 1 and output2.

2.6 Spindle speed control (0-10V) Setup:

There is 0-10v signal output on the control card, Can be used to connect the Inverter to control the spindle speed.

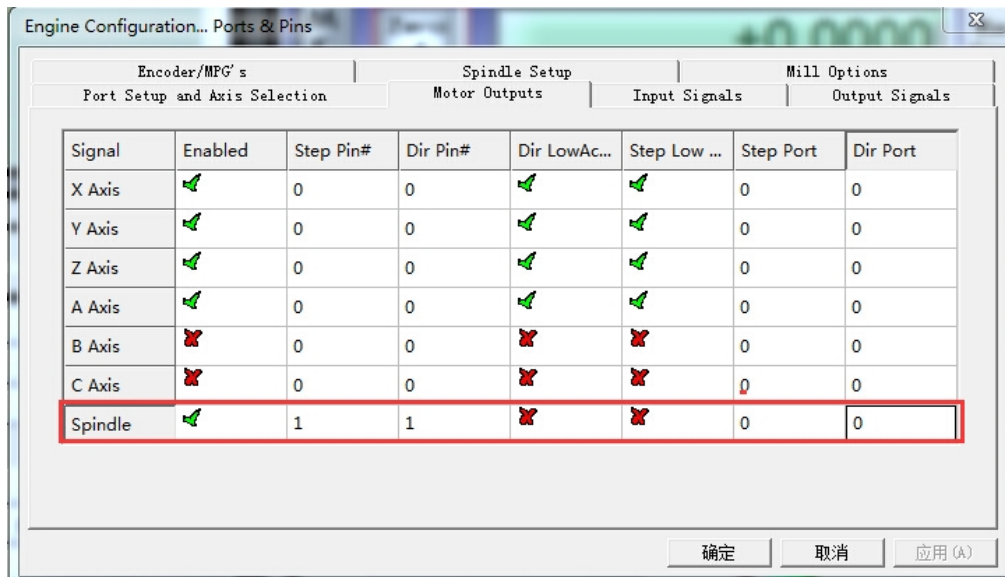According to the actual parameters of the inverter and the spindle, set the maximum spindle

speed (for example,24000RPM). As shown below:The Mach3 Menu => Config => Spindle pulleys：
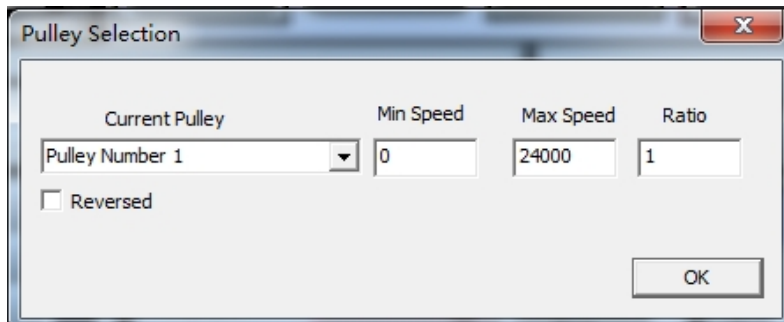
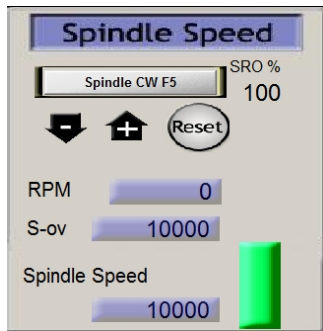Setup Spindle parameters: as shown in the red box
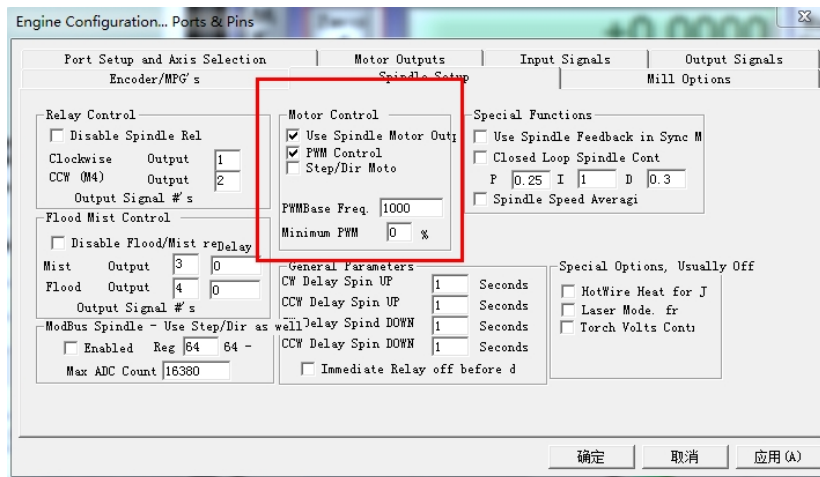

Enable spindle output. as shown below:

Completion of the setting, there are two ways to control the output value of 0 ~ 10V.

1. Using the S command. Such as S20000 (the speed to 20000RPM)

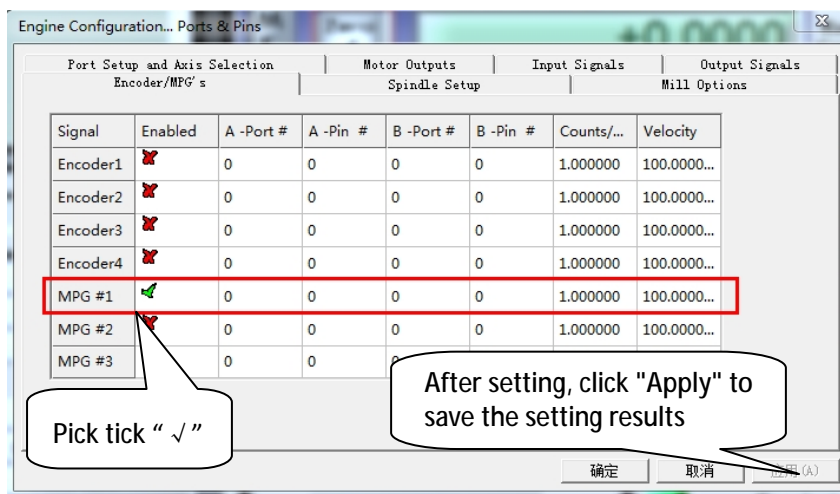2. Using the Mach3 interface control (input Spindle Speed, and adjust Percentage SRO's). Figure:

2.6 Mach3 MPG Setup:

Note: The electronic handwheel selection 5V voltage output models, more than 5V output will damage the hand wheel interface, refer to the following wiring diagram:
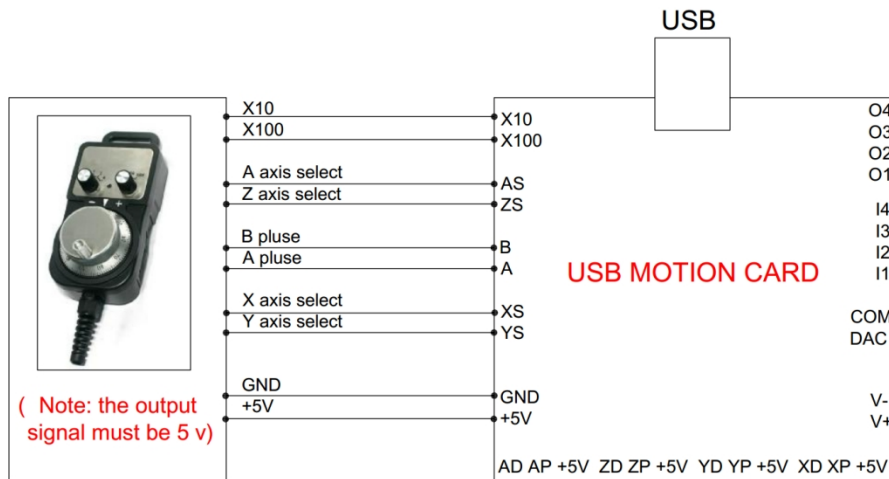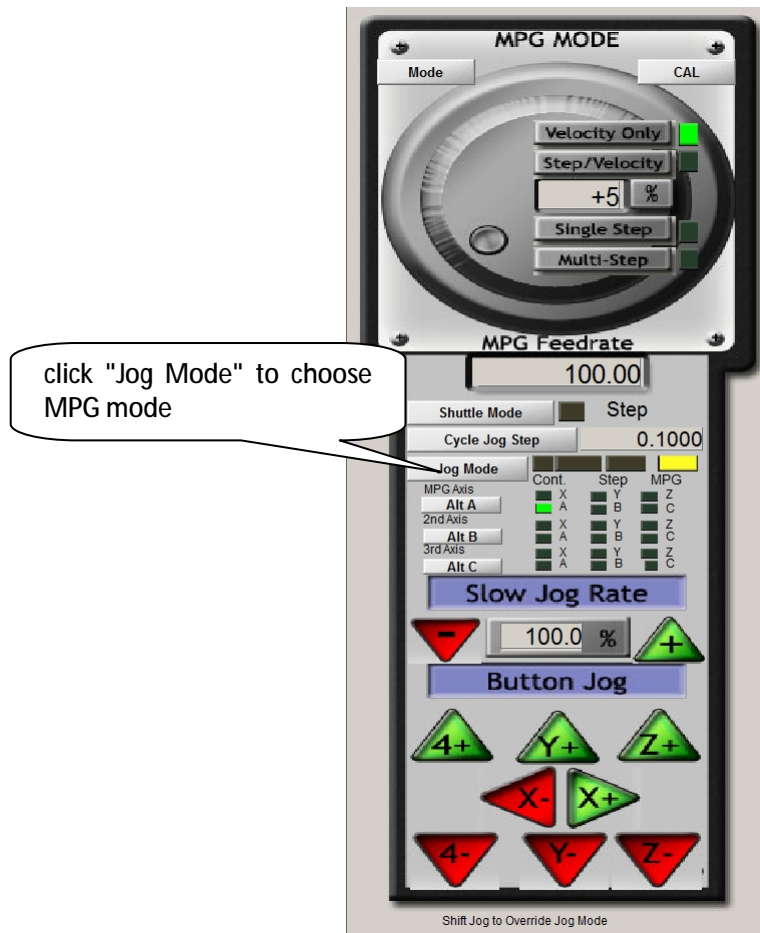

Mach3 MPG Setup:

The Mach3 Menu => Config =>Ports and Pins=>Encoder/MPG'S

Press the "Tab" key on your keyboard, to bring up the "MPG MODE" mach3:

Click the "Jog mode" select MPG mode, you can use the electronic handwheel control the motor run.